UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/850,059	05/08/2001	Jang Geun Oh	P-180	9167

			EXAMINER
34610	7590	11/29/2004	PATEL, NITIN C

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2116	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 17-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 17-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *10/12/2004*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This is in responsive to amendment filed on October 12, 2004.

2.   Claim 16 has been canceled.

3.   Claims 19 – 34 have been added new.

Claim Objections

4.   Claims 5, 19, 22, and 24 are objected to because of the following informalities:

5.   In the claim 5, replace "the CPU clock throttle rate" with ---CPU clock throttle rate--- as

a clock throttle rate has not been recited in the claim.

6.   In the claim 19, replace "the clock speed" with ---clock speed--- as a clock throttle rate

has not been recited in the claim.

7.   In the claim 22 replace "the CPU clock throttle rate" with ---CPU clock throttle rate--- as

a clock throttle rate has not been recited in the claim.

8.   In the claim 24 replace "the CPU clock throttle rate" with ---CPU clock throttle rate--- as

a clock throttle rate has not been recited in the claim.

9.   Appropriate correction is required.

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

11.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12.   Claims 1 – 7, 9 – 15, 17 – 30, and 32 – 34 are rejected under 35 U.S.C. 102(e) as being

clearly anticipated by Malcolm et al. [hereinafter as Malcolm], US Patent 6,684,341.

13.   As to claim 1, Malcolm discloses a method for adjusting a speed of a central processing

unit [CPU], comprising:

        a.   measuring [determining] a usage of the CPU [CPU utilization] [step 600, fig.6];

        b.   comparing [comparing] the measured CPU usage [current processor utilization]

with a predetermined reference CPU usage range [predetermined processor utilization

ratio][step 604, fig. 6]; and

        c.   adjusting [adjusting by increasing/decreasing] the speed of the CPU [processor

speed] responsive to [based on] the comparison [col. 7, lines 23 – 58].

14.   As to claim 12, Malcolm discloses a computer, comprising:

        a.   user interface means [user input mechanism] for enabling [selecting] speed

adjustment based on CPU usage [col. 7, lines 5 – 10];

        b.   power management means [308, power management OS module] for controlling a

CPU'S speed; and

        c.   device driver means [312, PM driver] for reading CPU usage and controlling said

power management means. wherein the device driver [312] means comprises: (i) a first circuit

[determining is inherently having a determining circuit] that measures [determines] a usage of

the CPU [cpu utilization] [col. 5, lines 40 – 47, col. 7, lines 30 - 32], (ii) a second circuit that

compares [comparison is inherently having a comparator circuit] the measured CPU usage with a

predetermined CPU usage range [col. 7, lines 38 – 40], and (iii) a third circuit [steps 608 for

increasing, and 606 for decreasing speed of CPU is inherently having a circuit] that adjusts [by increasing/decreasing] the speed of CPU [CPU speed] responsive to [based on] the comparison [col. 5, lines 19 – 67, col. 6, lines 1 – 56, col. 7, lines 23 – 58].

15.   As to claim 15, Malcolm discloses a stored program for machines implemented adjustment of a speed of a CPU [computer implemented instructions for automatically adjusting speed of processor, col. 4, lines 9 - 44], comprising:

a.   a first routine [600] that measures [determines] a usage of the CPU [processor utilization][col. 7, lines 30 - 32, fig. 6];

b.   a second routine [604] for comparing [comparison] the measured CPU usage [current processor utilization] with a predetermined CPU usage range[predetermined processor utilization ratio] [col. 7, lines 338 – 39]; and

c.   a third routine for adjusting [by increasing/decreasing] the speed of the CPU [speed of CPU], wherein the third routine comprises: (i) a first subroutine for reducing the speed [606, speed down] if the measured CPU usage is less than a minimum reference CPU usage of the predetermined CPU range, (ii) a second subroutine for maintaining the speed if the measured CPU usage is within the predetermined CPU usage range [processor speed is maintained with processor utilization ratio by adjusting speed in a smallest unit increment in granularity][col. 7, lines 50 – 56], and (iii) a third subroutine for recovering the speed [608, speedup] if the measured CPU usage is more than a maximum reference CPU usage of the predetermined reference CPU usage range [col. 7, lines 23 – 58, fig. 6].

16.   As to claim 24, Malcom discloses a method for adjusting a speed of a central processing unit [CPU], comprising:

    a.   measuring [determining] a usage of the CPU [CPU untilization] [step 600, fig.6];

    b.   comparing [comparing] the measured CPU usage [current processor utilization]

with a predetermined reference CPU usage range [predetermined processor utilization

ratio][step 604, fig. 6]; and

    c.   adjusting the speed of the CPU in accordance with the comparing, wherein if the

measured CPU usage is between lower and upper reference CPU usages of the predetermined

reference CPU usage range, then the adjustment of the CPU speed is carried out by maintaining

the CPU clock throttle rate [CPU speed][col. 7, lines 23 – 58, fig. 6].

17.   As to claim 25, Malcom discloses a method for controlling a performance state of a

central processing unit [CPU] [adjusting a speed of CPU with utilization], comprising:

    a.   measuring [determining] a usage of the CPU [CPU untilization] [step 600, fig.6];

    b.   comparing [comparing] the measured CPU usage [current processor utilization]

with a predetermined reference CPU usage range [predetermined processor utilization

ratio][step 604, fig. 6]; and

    c.   determining the performance state [processor speed] of the CPU responsive to

[based on] the comparison [with current CPU utilization], wherein if the measured CPU usage is

less than a minimum reference CPU usage of the predetermined reference CPU usage range, then

the determination of the CPU performance state [CPU speed] includes changing [adjusting by

increasing/decreasing] the CPU performance state [CPU speed][col. 7, lines 23 – 58, fig. 6].

18.   As to claims 2, 10, 11, 20, and 26, Malcolm discloses to set the predetermined reference

CPU usage range either with or without a user's input [col. 7, lines 3 – 10].

19.   As to claims 3 – 4, Malcolm discloses the adjustment of CPU speed with reducing the

CPU speed to a next lower speed [606, slow down processor by one unit] in step wise fashion

[with a smallest unit], when the measured usage [current utilization] is less than a minimum

reference CPU usage of predetermined reference CPU usage range [processor utilization

ratio][col. 7, lines 50 – 58, fig. 6].

20.   As to claims 5, and 28, Malcolm discloses the adjustment of the CPU speed by

maintaining a clock throttle rate [a smallest unit] when CPU usage is between minimum and

maximum reference CPU usage of predetermined usage range [col. 7, lines 30 – 58].

21.   As to claims 6, Malcolm discloses the adjustment of CPU speed with recovering [608,

speed up processor] the CPU speed [606, slow down processor by one unit], when the measured

usage [current utilization] is more than maximum reference CPU usage of predetermined

reference CPU usage range [processor utilization ratio][col. 7, lines 50 – 58, fig. 6].

22.   As to claims 7, 18, and 30 Malcolm discloses Windows system [Windows 2000]

therefore he teaches detection of registry information of a computer system too [col. 2, lines 26 –

33, col.3, lines 55 – 56].

23.   As to claims 9, 17, and 32, Malcolm discloses the measuring, comparing, and adjusting

steps in repeated in order at predetermined interval of time [fig. 6].

24.   As to claim 13, Malcolm discloses a power management [219], which includes registers

and method of automatically adjusting the speed of the processor [col. 4, lines 16 – 44].

25.   As to claim 14, since Malcolm discloses device driver [PM driver 312], which is

inherently to have seven types of different layers.

26.   As to claims 19, and 29, Malcolm teaches subroutine to initialize all clock speed

[initialization subroutine of system inherently initialize the CPU clock speed].

27.   As to claim 21, Malcolm teaches a third routine for adjusting [by increasing/decreasing]

the speed of the CPU [speed of CPU], wherein the third circuit comprises: (i) a first unit reduces

the speed [606, speed down] if the measured CPU usage is less than a minimum reference CPU

usage of the predetermined CPU range, (ii) a second unit maintains the speed if the measured

CPU usage is within the predetermined CPU usage range [processor speed is maintained with

processor utilization ratio by adjusting speed in a smallest unit increment in granularity][col. 7,

lines 50 – 56], and (iii) a third unit recovers the speed [608, speedup] if the measured CPU usage

is more than a maximum reference CPU usage of the predetermined reference CPU usage range

[col. 7, lines 23 – 58, fig. 6].

28.   As to claims 22, and 23, Malcolm teaches CPU speed adjustment method, wherein if the

measured CPU usage is less than a minimum reference CPU usage of the predetermined

reference CPU usage range [CPU utilization ratio], then the adjustment of the CPU speed

comprises reducing the CPU speed in a stepwise fashion, wherein the reduction of the CPU

speed comprises adjusting the speed to a next lower speed, and wherein if the measured CPU

usage is between minimum and maximum reference CPU usages of the predetermined reference

CPU usage range, then the adjustment of the CPU speed is carried out by maintaining the CPU

clock throttle rate [col. 7, lines 30 – 58, fig. 6].

29.   As to claim 27, Malcolm teaches determination of the CPU performance state [CPU

speed] comprises changing the performance state [CPU speed] to a next lower performance state

[next lower speed] in a stepwise fashion [fig. 6].

As to claims 33, and 34, Malcolm discloses to set the predetermined reference CPU usage range

either with or without a user's input [col. 7, lines 3 – 10].

Claim Rejections - 35 USC § 103

30.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

31.   Claims 8, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Malcolm et al. [hereinafter as Malcolm], US Patent 6,684,341 as applied to claims 1 – 7, 9 – 30,

and 32 – 34 above, and further in view of Bishop et al. [hereinafter as Bishop][cited by applicant

in IDS dated 10/12/04].

32.   As to claims 8, and 31, Malcolm discloses a method for adjusting a speed of a central

processing unit [CPU], comprising: measuring [determining] a usage of the CPU [CPU

untilization] [step 600, fig.6]; comparing [comparing] the measured CPU usage [current

processor utilization] with a predetermined reference CPU usage range [predetermined processor

utilization ratio][step 604, fig. 6]; and adjusting [adjusting by increasing/decreasing] the speed of

the CPU [processor speed] responsive to [based on] the comparison [col. 7, lines 23 – 58].

However, Bishop does disclose measuring of CPU usage but does not explicitly disclose

that CPU usage is measured by calculating an idle thread value of the CPU for a predetermined

period of time. In summary, Malcolm does not teach to measure the CPU usage [utilization]

explicitly by calculating an idle thread value of the CPU.

Bishop discloses a system and method for measuring CPU activity or utilization by calculating idle thread value [measuring amount of time the system is idle (or available to perform other tasks) is the amount of time the idle process was executing [col. 10, lines 50 – 67].

It would have been obvious to one of ordinary skill in art, having the teachings of Malcolm and Bishop before him at the time of invention was made, to modify the measuring [determining] CPU usage disclosed by Malcolm to include a CPU activity or utilization measurement by calculating an idle thread value of CPU as taught by Bishop in order to obtain a CPU or peripheral device availability/utilization in real time and state of the data processing system is maintained in real time, while system's performance in providing such information is kept to a minimum [col. 3, lines 12 – 59].

Prior Art not relied upon:

Please refer to the references listed in attached PTO-892, which, are not relied upon for claim rejection but these references are relevant to the claimed invention.

33.   Applicant's arguments with respect to claims 1 - 34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

34.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Nitin C. Patel whose telephone number is 571-272-3675. The

examiner can normally be reached on 7:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Lynne H. Browne can be reached on 571-272-3670. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nitin C. Patel
November 23, 2004

A. ELAMIN
PRIMARY EXAMINER